

銘傳大學 97 學年度研究所碩士班招生考試

電子工程學系碩士班

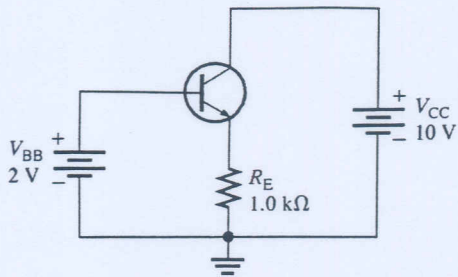
電子學試題(第三節)

(第 1 頁共 2 頁)(限用答案本作答)

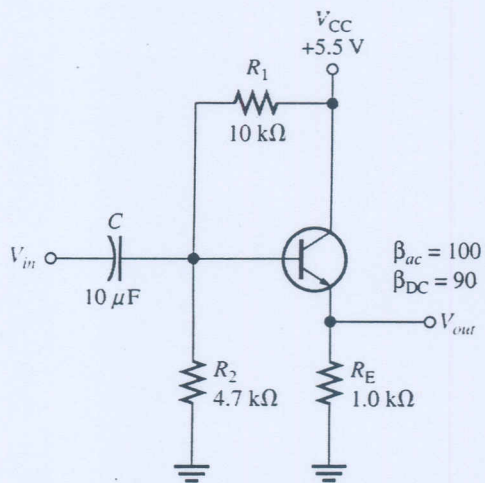
可使用計算機  不可使用計算機

可使用計算機

1. (20%) Find  $I_B = ?$   $I_C = ?$   $I_E = ?$   $V_{CE} = ?$   $\alpha = 0.98$ ,  $\alpha = \frac{\beta}{1 + \beta}$



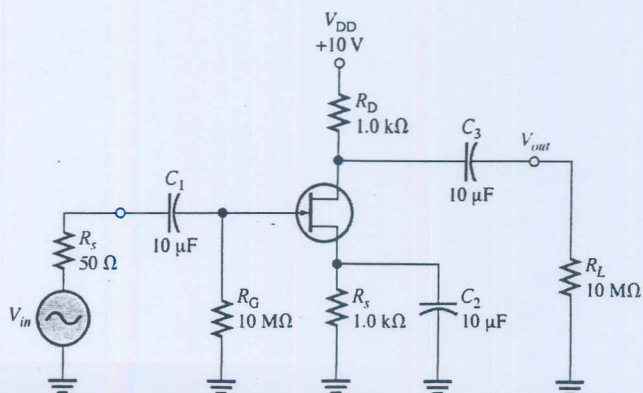
2. (20%) Find  $R_{in(tot)} = \underline{\hspace{2cm}}$ ;  $A_v = \underline{\hspace{2cm}}$ ;



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3. (20%) For the value  $C_{iss} = 8\text{pF}$ ,  $C_{rss} = 3\text{pF}$ ,  
and  $g_m = 6500\mu\text{S}$ ,

- (1) the voltage gain at midrange
- (2) the input critical frequency of internal capacitance
- (3) the output critical frequency of internal capacitance
- (4) show the high frequency response of the amplifier with Bode plot



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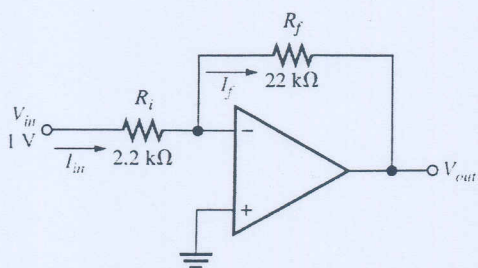
電子工程學系碩士班

電子學試題(第三節)

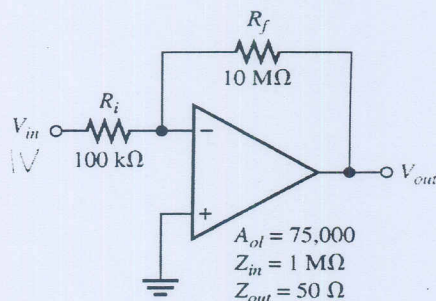
(第 2 頁共 2 頁) (限用答案本作答)

可使用計算機  不可使用計算機

4. (20%) Determine the  $V_{out}$  of the figures .

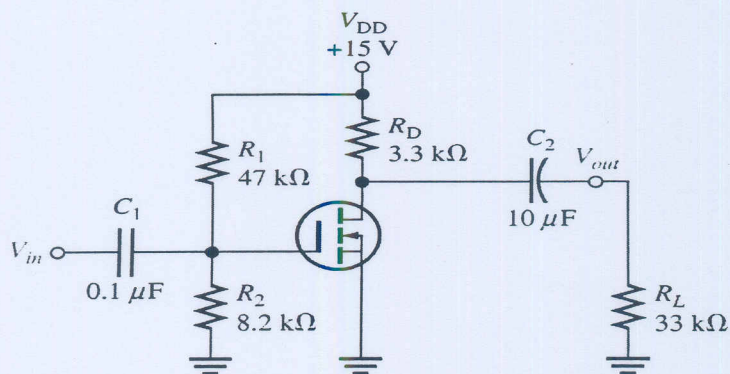


(a)



(b)

5. (20%) A common-source amplifier is as shown. Find  $I_D$  and the ac output voltage. Assume  $I_{D(on)} = 200\text{mA}$ , at  $V_{GS} = 4\text{V}$ ,  $V_{GS(th)} = 2\text{V}$ , and  $g_m = 23\text{mS}$ .  $V_{in} = 25\text{mV}$ .



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試題完